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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/629,141	07/31/2000	Noriaki Yukawa	P19826	4629

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1950 ROLAND CLARKE PLACE
RESTON, VA 20191

EXAMINER

CHAWAN, SHEELA C

ART UNIT	PAPER NUMBER
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2625

DATE MAILED: 07/01/2003

3

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/629,141

Applicant(s)

YUKAWA ET AL.

Examiner

Sheela C Chawan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 July 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 July 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

2. Drawings filed on this 7/31/00 have been approved.

Claim Rejections - 35 U.S.C. § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103[®] and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-10, are rejected under 35 U.S.C. 103(a) as being unpatentable over Mitsumune et al. (US.5,717,780) in view of Yamashita et al. (US.5,185,812).

As per claims 1 and 7, Mitsumune discloses a method of erasing repeated patterns in a dark/light image obtained by image pickup of a subject of inspection, when identifying defects present in a repeated pattern in a subject of inspection (abstract, column 2, lines 40- 54) , comprising the procedures of:

demarcating the obtained image into a plurality of areas (column 2, lines 40- 54, column 5, lines 17- 34, column 6, lines 48- 60, column 7, lines 36-44);

detecting a reference pixel in one of said demarcated areas (fig 11, item n8, column 1, lines 42- 65, column 2, lines 40- 67, column 6, lines 6- 20, column 7, lines 36-44);

Regarding claims 1 and 7, Mitsumune discloses checking apparatus for flat type display panels .Mitsumune is silent about specific details of assigning a comparison pixel in each of the rest of said demarcated areas ; obtaining a plurality of density differences between said reference pixel and each of said comparison pixels; determining a density difference that is closest to as a specific density difference; and applying said specific density difference to a reference density of the image. However, Yamashita discloses a pattern inspection system that is used to inspect defects of a pattern drawn on a mask, a semiconductor integrated circuit pattern feature extraction function for extracting the feature of a circuit pattern . The system comprises of :

assigning a comparison pixel in each of the rest of said demarcated areas (column 2, lines 28- 46) ;

obtaining a plurality of density differences between said reference pixel and each of said comparison pixels (column 2, lines 28- 46, column 5, lines 15- 41) ;

determining a density difference that is closest to as a specific density difference;
and

applying said specific density difference to a reference density of the image (column 6, lines 49- 68, column 8, lines 45- 51), as shown by Yamashita the use of assigning a comparison pixel in each of the rest of said demarcated areas , the pattern feature extraction can be performed by simple arithmetic processing and at a high speed because this can improve the efficiency of pattern defect detection (column 11, lines 1- 9).

Therefore, it would have been obvious to one with ordinary skill in the art at the time of invention to incorporate the teaching the step of assigning a comparison pixel in each of the rest of said demarcated areas as taught by Yamashita's into the system of Mitsumune because one with ordinary skill in the art would realize that it is possible to extract pattern feature can be performed by simple arithmetic processing and at a high speed because this can improve the efficiency of pattern defect detection , as suggested by Yamashita at (column 11, lines 1- 9).

As per claims 2 and 8, Mitsumune discloses the method of erasing repeated patterns in a dark/light image wherein the subject of inspection is a liquid crystal array panel (column 1, lines 9-16) .

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As per claims 3 and 9, Mitsumune discloses the method of erasing repeated patterns in a dark/light image wherein the subject of inspection is a plasma display panel (column 1, lines 9-16).

As per claim 4, Mitsumune discloses the method of erasing repeated patterns in a dark/light image wherein in the step of demarcating the obtained image into a plurality of areas, the plurality of areas have a size of a predetermined number of pixels obtained in accordance with the pattern pitch of the repeated patterns in the dark/light image (column 6, lines 37- 60).

As per claims 5 and 10, Yamashita discloses the method of erasing repeated patterns in a dark/light image wherein in the step of determining a specific density difference (column 2, lines 28- 46, column 5, lines 15-41, column 6, lines 49-68) , a mean value of the plurality of density differences between the reference pixel and the comparison pixels is determined as the specific density difference (column 3, lines 3-18) .

As per claim 6, Mitsumune discloses a method of manufacturing electronic equipment devices at least including liquid crystal panels, plasma display panels, and semiconductor wafers, including an inspection process that is performed with the method of erasing repeated patterns (column 1, lines 9-16) .

Other prior art cited

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Okamoto (US.6,222,935) discloses pattern inspecting method and pattern inspecting device.

Garakani (US.6,005,978) discloses robust search for image features across image sequence exhibiting non-uniform changes in brightness .

Gallarda et al. (US.6,539,106) discloses feature-based defect detection .

Guest et al. (US.6,252,981) discloses system and method for selection of a reference die.

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Contact Information

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sheela Chawan whose telephone number is (703) 305-4876.

If attempts to reach the examiner on Monday through Thursday from 8:30 a.m. to 5: 00 p.m. by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta , can be reached at (703) 308- 5246.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872 - 9314, (for formal communications intended for entry)

Or: Any inquiry of a general nature or relating to the status of this application should be directed to the Group Receptionist whose telephone number is (703)305- 4750.

SCC
Sheela Chawan
Patent Examiner
Group Art Unit 2625
June 24, 2003

J. K. Patel
Jayanti K. Patel
Primary Examiner